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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/630,371	08/01/2000	LIVIA POLANYI	106699	5775

25944 7590 05/27/2004

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EXAMINER

ALBERTALLI, BRIAN LOUIS

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/630,371

**Applicant(s)**

POLANYI ET AL.

**Examiner**

Brian L Albertalli

**Art Unit**

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                        |                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - a) On page 6, line 15, the phrase "modifier determining circuit 150" should be --modifier determining circuit 160--.
  - b) On page 11, line 31, the phrase "After the a node" should be either --After the node-- or --After a node--.

Appropriate correction is required.

### ***Claim Objections***

2. Claims 10 and 14-24 are objected to because of the following informalities: claims 14-17 and 20-23, are dependent on "The discourse analysis method of claim 1". However, claim 1 is a system of discourse analysis. Similarly, claims 18-19 and 24 are incorrectly dependent on claim 2. Therefore, claims 14-25 have been examined as being dependent on claim 13. Claim 10 is dependent upon itself and has been reinterpreted as being dependent upon claim 9.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 12 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 12 is dependent upon itself (claim 12 is dependent on claim 12). It is unclear what claim it was intended to be dependent of. The parallel method claim 25 is dependent on claim 12 and so it is also not clear as to what claim it was intended to be dependent of. Therefore, claims 12 and 25 have not been examined herein.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wical (U.S. Patent 5,708,822), in view of Polanyi (*The Linguistic Structure of Discourse*).

8. In regard to claim 1, Wical discloses a system of parsing input discourse (discourse analysis) (200) implemented with circuits (column 4, lines 45-46). The system:

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determines if a unit of text contains a modifier unit of text that provides content setting information for information encoded further along in the text (modifier) (column 10, lines 45-49); and

identifies an operator unit of text that provides a commentary on aspects of the organization structure (operator) (column 10, lines 38-44); and

identifies a content unit of text that contains the expression of a state, action, or belief (content) (see column 11, lines 14-15).

Wical does not disclose a coordination determining circuit, a subordination determining circuit, or a binary determining circuit.

Polanyi discloses a discourse parsing system based on a discourse parse tree.

When a second unit of text continues discourse activity begun by a first unit of text, they are linked by a coordination node (pages 17-19, section 3.1).

When a second unit of text interrupts or elaborates upon discourse activity begun by a first unit of text, they are linked by a subordination node (pages 19-21, section 3.2).

Since Polanyi discloses there are only three different kinds of nodes, namely coordination nodes, subordination nodes, and binary nodes, (page 17, lines 1-3), if a second unit of text is not related to a first unit of text by either a coordination relationship or a subordination relationship, the second unit of text must necessarily be linked to the first unit of text by a binary relationship (pages 21-22, section 3.3).

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9. It would have been obvious to one of ordinary skill in the art to implement the discourse parsing process disclosed by Polanyi on circuits as disclosed by Wical since it has generally been recognized that the use of a conventional control to automate a previously manual operation is obvious because it involves only routine skill in the art and automation makes the system more user friendly.

*In re Venner, 120 USPQ 193 (CCPA 1958).*

10. In regard to claim 2 and 3, Wical discloses that the input discourse may be textual input or speech converted to textual input (column 4, lines 6-8).

11. In regard to claim 4, Wical does not explicitly state the theme parsing system is used to analyze English text, however, all of the examples are given in English. This would suggest to one of ordinary skill in the art at the time of invention to use the theme parsing system to analyze English text.

12. In regard to claims 5 and 6, Wical does not disclose the theme parsing system is specifically used to analyze legal or medical writing, however, Wical does disclose that the theme parsing system identifies "industry specific" terminology (column 7, lines 41-56). This would suggest to one of ordinary skill in the art at the time of invention to use the theme parsing system to analyze legal and medical writing.

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13. In regard to claims 7 and 8, Wical discloses that the theme parsing system analyzes textual input (recorded communication) as well as speech input (communication) (column 4, lines 6-8).

14. In regard to claims 9 and 10, Wical does not disclose the structural representation is a tree structure.

15. Polanyi discloses a tree structure used for discourse analysis (pages 16-26, section 3-3.4). The tree structure is an open right tree structure.

16. It would have been obvious for one of ordinary skill in the art at the time of invention to modify the theme parsing system of Wical so that a discourse tree was created, in order to provide "better tools for systematic investigation of discourse level linguistic phenomena", as taught by Polanyi (page 46, line 42).

17. In regard to claim 11, Wical does not disclose comparing visualizations of structural representation of discourse for a document genre to the structural representation of discourse for text.

18. Polanyi discloses a structural representation of a document genre (page 31, (21)) and a structural representation of discourse for a text (20). Additionally Polanyi discloses an analysis of the structural representation of discourse (20) by comparing it to the structural representation of a document genre (21) (pages 31-32).

19. It would have been obvious for one of ordinary skill in the art to modify Wical so that the structural representation of discourse for a text would be

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compared to a structural representation of a document genre. The motivation for doing so would be to provide “better tools for systematic investigation of discourse level linguistic phenomena”, as taught by Polanyi (page 46, line 42).

20. Claims 13-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wical in view of Polanyi (1) (*A Formal Model of the Structure of Discourse*), and further in view of Polanyi (2) (*The Linguistic Structure of Discourse*).

21. In regard to claim 13, Wical discloses a method of parsing input discourse (discourse analysis) that performs a series of tests against each word or phrase (unit of text) (column 9, lines 13-15). The method can determine if the unit of text is a modifier, operator, or content unit.

22. Wical does not disclose using a first unit of text as a root node, then selecting a unit of text not yet inserted into the tree and selecting that node. Further, Wical does not disclose determining if that unit of text is a coordination, and if so, replacing the selected node with a coordination node and adding the selected node as a left child node and adding a new node representing the current unit of text as the right child node, or determining if that unit of text is a subordination, and if so, replacing the selected node with a subordination node and adding the first node as a left child node and the selected next unit of text as a right child mode, or determining if that unit of text is not a coordination or subordination, and if so, replacing the selected node with a binary node and



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adding the first node as a left child node and the selected next unit of text as a right child node.

23. Polanyi (1) discloses a method of discourse analysis in which a discourse parse tree is constructed (pages 620-626, section 4). A first unit of text is inserted as a root node (page 620, Fig. 12). When dcu (3) (current unit of text) is determined to continue the discourse activity in the node represented by dcu (b) (selected node), the selected node is replaced with a coordination node. Dcu (b) (selected node) is added as the left child node, and dcu (c) (current unit of text) is added as the right child node of the coordination node (page 621, Fig. 14).

24. Polanyi (1) further discloses dcu (b) as the current unit of text being compared to dcu (a) (selected node). Dcu (b) (current unit of text) is determined to be an elaboration on dcu (a) (selected node). Dcu (a) (selected node) is replaced by a subordination node, dcu (a) (selected node) is added as a left child node, and dcu (b) (current unit of text) is added as a right child node (page 621, Fig. 13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the method of tree parsing as disclosed by Polanyi (1) with the parsing system of Wical in order to provide a "principled, left to right, clause by clause construction" of a discourse parse tree, as taught by Polanyi (1) (page 616, lines 18-20).

25. Wical and Polanyi (1) do not disclose replacing the selected node with a binary node, adding the selected node as the left child node and adding the next unit of text as the right child node.

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26. Polanyi (2) discloses a binary structure in which a first text unit (page 21, 13a) is in a binary relationship with a second text unit (13b). In figure 14, it is clear that when evaluated, the selected node (13a) becomes the left child node, and the current unit of text (13b) becomes the right child node to the binary node.

27. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wical and Polanyi (1) to include binary structures as described in Polanyi (2) in the discourse tree building process. Doing so would allow the discourse tree building method to hold relations between two text units related logically, rhetorically, or interactionally, as taught by Polanyi (2) (page 21, section 3.3).

28. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to perform the discourse parsing method disclosed by Polanyi (1), as modified by Polanyi (2) in addition to the determination of a modifier, operator, or content unit as disclosed by Wical, to create a discourse parse tree that captures the semantic relations among a discourse constituent units, as taught by Polanyi (1) (page 601, abstract).

29. In regard to claim 14 and 15, Wical discloses that the input discourse may be textual input or speech converted to textual input (column 4, lines 6-8).

30. In regard to claim 16, Wical and Polanyi (1) does not explicitly state the theme parsing system is used to analyze English text, however, all of the examples are given in English. This would suggest to one of ordinary skill in the

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art at the time of invention to use the theme parsing system to analyze English text.

31. In regard to claim 17, Wical and Polanyi (1) does not disclose the theme parsing system is used to analyze other human language texts.

32. Polanyi (2) discloses an analysis of the Mocho language (pages 26-33, section 3.5).

33. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wical and Polanyi (1) to analyze other human languages, as taught by Polanyi (2), so the theme parsing system could also be used in other countries.

34. In regard to claims 18 and 19, Wical does not disclose the theme parsing system is specifically used to analyze legal or medical writing, however, Wical does disclose that the theme parsing system "industry specific" terminology (column 7, lines 41-56). This would suggest to one of ordinary skill in the art at the time of invention to use the theme parsing system to analyze legal and medical writing.

35. In regard to claims 20 and 21, Wical discloses that the theme parsing system analyzes textual input (recorded communication) as well as speech input (communication) (column 4, lines 6-8).

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36. In regard to claim 22 and 23, Wical does not disclose the structural representation is a tree structure or that the structural representation is an open right tree structure.

37. Polanyi (2) discloses a tree structure used for discourse analysis (pages 16-26, section 3-3.4). The tree structure is an open right tree structure.

38. It would have been obvious for one of ordinary skill in the art at the time of invention to modify the theme parsing system of Wical so that a discourse tree with an open right tree structure was created, in order to provide better tools for systematic investigation of discourse level linguistic phenomena, as taught by Polanyi (2) (page 46, line 42).

39. In regard to claim 24 and 25, Wical does not disclose comparing visualizations of structural representation of discourse for a document genre to the structural representation of discourse for text.

40. Polanyi (2) discloses a structural representation of a document genre (page 31, (21)) and a structural representation of discourse for a text (20).

Additionally Polanyi (2) discloses an analysis on the structural representation of discourse (20) by comparing it to the structural representation of a document genre (21) (pages 31-32).

41. It would have been obvious for one of ordinary skill in the art at the time of invention to modify Wical so that the structural representation of discourse for a text would be compared to a structural representation of a document genre, so

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as to provide better tools for systematic investigation of discourse level linguistic phenomena, as taught by Polanyi (2) (page 46, line 42).

### ***Conclusion***

42. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Polanyi et al. (*Discourse Structure and Discourse Interpretation*) discloses another example of discourse parsing using the Linguistic Discourse Model. Marcu (*Discourse Trees are Good Indicators of Importance in Text*) discloses that concepts of discourse structure can be used effectively in text summarization. Polanyi (*The Linguistic Discourse Model: Towards a Formal Theory of Discourse Structure*) discloses that the Linguistic Discourse Model provides correct assignment of temporal interpretation.

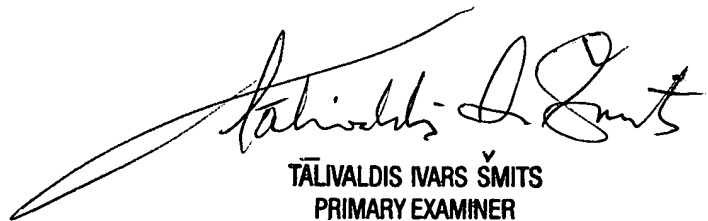
43. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L Albertalli whose telephone number is (703) 305-1817. The examiner can normally be reached on Monday - Friday, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703) 305-0311. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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BLA 5/12/04



TĀIVALDIS IVARS ŠMITS  
PRIMARY EXAMINER